



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D2892-1
Job Sheet 167800



Part No: D2892-1

Job Qty: 10 ea

Part Name: Support



Part Weight: 0 lbs

Status: Scheduled

Priority: High

Job Created: 11/7/17

Job Tracking No:

Due Date: 11/24/17

Created By: Victoria Michaud-Febrille

Type: SOLD

Description:

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	10 Ea	11/23/17	11/23/17	0.00	0.00	Start Up Crosstubes	MACHINING	
100	CNC Vertical Machining	10 pcs	11/23/17	11/23/17	0.36	8.47	HAAS 1		
120	QC	10 pcs	11/23/17	11/23/17	0.00	0.00	QC8		
130	Crosstubes	10 pcs	11/24/17	11/24/17	0.00	1.61	Crosstube		S. J. NOV 24 2017
140	QC	10 pcs	11/24/17	11/24/17	0.00	0.00	QC3		NOV 25
170	Packaging	10 pcs	11/24/17	11/24/17	0.00	0.00	Packaging3		
180	QC21-SA	10 Ea	11/24/17	11/24/17	0.00	0.00	QC21		NOV 28 2017

Part Op 100 - 1-Machine as per Folio FA082

Descriptions: 130 - Per note 8 on page 1 of dwg D2892, Prep inner concave surface of support and apply 3M Scotch-Weld as per dwg.

24h of cure time B138381-2P 11/18

170 - LOCATION : LG050

F164943-0

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	DSK077	5	8	0	0

Part Specifications

Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	2.250 Support	0.115Inches + 0.035 - 0.000	0.150 0.115		
2	2.250 Support	0.290Inches + 0.020 - 0.000	0.310 0.290		
3	2.250 Support	0.040Inches + 0.020 - 0.000	0.060 0.040		
4	2.250 Support	0.115Inches + 0.035 - 0.000	0.150 0.115		
5	2.250 Support	0.240Inches + 0.020 - 0.000	0.260 0.240		
6	2.250 Support	0.188Inches + 0.005 - 0.000	0.193 0.188		
7	2.250 Support	0.240Inches + 0.020 - 0.000	0.260 0.240		
8	2.250 Support	1.116Inches + 0.040 - 0.000	1.156 1.116		
9	2.250 Support	0.454Inches	0.474		

DQA: ☐ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS					
Part No. _____		Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐		
NCR No. _____		Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐		
		Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐		
		Large Fab ☐	Composite ☐	Supplier ☐			

Date : _____	Step #: _____	QTY Effective : _____	MRB (QSI042) Approval _____
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Description Work Order Deviation	Disposition	Completed By
Job No: 167800 Mfg Date: 11/21/17		

hand / Supervisor
roval Verification/ QA Coordinator
Approval

PART NO: D2892-1
Revision: Cross tubes
Operation: No:
Change No:

Root Cause Environment ☐ No Re-verification ☐ Design ☐ Operator ☐ Doc/Data ☐ Offset/Setup ☐ Equip/Tooling ☐ Supplier ☐ Handling/Pre ☐ Training ☐ Material ☐ Use for Testing ☐ Internal Transport ☐ Poor Information ☐ Tribal Knowledge ☐ Rushing ☐ LOA ☐ Product Improvement ☐ Substation ☐ Process Improvement ☐ Past Expiry Date ☐ Manufacturing Process ☐ Misidentified ☐ Past Due ☐		Pressure ☐ Bending ☐ Centre ☐ Cracks ☐ Crimp/k ☐ Cuffs ☐ Crushing ☐ Heat Tr ☐ Wave/T ☐ Marks/Chatter ☐	Drill Holes ☐ Misaligned/off center ☐ Turning Sequence ☐
OTHER :		Misaligned/off center ☐ Turning Sequence ☐	

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 Hawkesbury, ON K6A 1K7
 CANADA
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 Email: sales@dartaero.com
 www.dartaerospace.com



DART
 AEROSPACE
S012250

Support

sitioned Wrong
 tside Dimensions
 er/Under tolerance
 t Incorrect
 t Lost/Missing
 t Moved
 ewing
 ish
 spread
 Misaligned/off center
 Turning Sequence

			+ 0.020	0.454
			- 0.000	
10	2.250 Support	0.240Inches	+ 0.020	0.260
			- 0.000	0.240
11	2.250 Support	0.053Inches	+ 0.020	0.073
			- 0.000	0.053
12	2.250 Support	0.257Inches	+ 0.005	0.262
			- 0.000	0.257
13	2.250 Support	1.663Inches	+ 0.020	1.683
			- 0.000	1.663
14	2.250 Support	0.053Inches	+ 0.020	0.073
			- 0.000	0.053
15	2.250 Support	0.022Inches	+ 0.020	0.042
			- 0.000	0.022
16	2.250 Support	2.779Inches	+ 0.010	2.789
			- 0.000	2.779

Plex 11/7/17 8:08 AM dart.Michaud-Febrille.Victoria

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____ Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong				
Design ☐	☐ Operator	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions				
Doc/Data ☐	☐ Offset/Setup	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance				
Equip/Tooling ☐	☐ Supplier	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect				
Handling/Pre ☐	☐ Training	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing				
Material ☐	☐ Use for Testing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved				
Internal Transport ☐	☐ Poor Information	☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing				
Tribal Knowledge ☐	☐ Rushing	☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish				
LOA ☐	☐ Product Improvement	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread				
Substation ☐	☐ Process Improvement	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence				
Past Expiry Date ☐	☐ Manufacturing Process	OTHER :							
Misidentified ☐	☐ Past Due								

DART AEROSPACE LTD		Work Order:	167800
Description: Ø2.500 Support		Part Number:	D2892-1
Inspection Dwg: D2892	Rev: B	Page 1 of 1	

FIRST ARTICLE INSPECTION DIMENSION SHEET

				Record Actual Dimensions				
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	5
HAAS Section								
AA	0.115	0.150		.133	.133	.135	.134	.134
AB	0.290	0.310		.300	.300	.305	.305	.304
AC	0.040	0.060		.050	.050	.049	.048	.050
AD	0.115	0.150		.128	.128	.128	.128	.129
AE	0.240	0.260		.245/255	.250	.247	.246	.248
AF	0.188	0.193		.188	.188	.188	.188	.188
AG	0.240	0.260	Rayon	.250	.250	.250	.250	.250
AH	1.116	1.156		1.140	1.140	1.140	1.141	1.143
AI	0.454	0.474		.466	.466	.467	.466	.465
AJ	0.240	0.260	Rayon	.250	.250	.250	.250	.250
AK	0.053	0.073	Rayon	.069	.069	.069	.069	.069
AL	0.257	0.262		.260	.260	.260	.260	.260
AM	1.663	1.683		1.677	1.677	1.677	1.677	1.677
AN	0.053	0.073	Rayon	.063	.063	.063	.063	.063
AO	0.022	0.042	Rayon	.032	.032	.032	.032	.032
AP	2.779	2.789		2.784	2.784	2.784	2.783	2.782
AQ								
AR								
AS								
AT								
Accept/Reject								

Measured by:	<i>[Signature]</i>	Date:	2017/11/22
Audited by:	DAS 20 9-89	Date:	17-11-24
Preliminary Approval:		Date:	

Rev	Date	Change	Revised by	Approved
A	02.12.12	New Issue	KJ/RF	
B	08.04.21	Reformat	KJ/JLM	
C	12.01.31	Dwg Rev updated	KJ	
D	13.05.22	Dimensions updated	KJ	<i>[Signature]</i>

DART AEROSPACE LTD		Work Order:	167 800
Description: Ø2.500 Support		Part Number:	D2892-1
Inspection Dwg: D2892	Rev: B	Page 1 of 1	

FIRST ARTICLE INSPECTION DIMENSION SHEET

				Record Actual Dimensions				
Dim	Min	Max	Go/No Go Gauge	6A	7A	8A	9A	10A
HAAS Section								
AA	0.115	0.150		.134	.135	.135	.134	.135
AB	0.290	0.310		.280	.299	.295	.295	.299
AC	0.040	0.060		.050	.051	.051	.049	.050
AD	0.115	0.150		.129	.127	.127	.128	.128
AE	0.240	0.260		.247	.252	.250	.250	.251
AF	0.188	0.193		.188Ø	.188Ø	.188Ø	.188Ø	.188Ø
AG	0.240	0.260	Rayon	.250	.250	.250	.250	.250
AH	1.116	1.156		1.140	1.141	1.142	1.141	1.143
AI	0.454	0.474		.466	.465	.465	.466	.465
AJ	0.240	0.260	Rayon	.250	.250	.250	.250	.250
AK	0.053	0.073	Rayon	.069	.069	.069	.069	.069
AL	0.257	0.262		.260Ø	.260Ø	.260Ø	.260Ø	.260Ø
AM	1.663	1.683		1.677	1.679	1.678	1.677	1.677
AN	0.053	0.073	Rayon	.063	.063	.063	.063	.063
AO	0.022	0.042	Rayon	.032	.032	.032	.032	.032
AP	2.779	2.789		2.782	2.784	2.784		
AQ								
AR								
AS								
AT								
Accept/Reject								

Measured by:	M.M. DAS	Date:	2017/11/22
Audited by:	20 9-89	Date:	17-11-24
Preliminary Approval:		Date:	

Rev	Date	Change	Revised by	Approved
A	02.12.12	New Issue	KJ/RF	
B	08.04.21	Reformat	KJ/JLM	
C	12.01.31	Dwg Rev updated	KJ	
D	13.05.22	Dimensions updated	KJ	

NOTES:

1) MATERIAL: 17-4 PH STAINLESS STEEL, H900 OR H925 CONDITION
MIN UTS = 170 KSI (38 HRC)
(REF DART SPEC. D6104)

2) FINISH: NONE

3) TOLERANCES: PER DART QSI 018 (REF. X.XXX = ± 0.010) UNLESS OTHERWISE NOTED

4) UNITS: INCHES UNLESS OTHERWISE NOTED

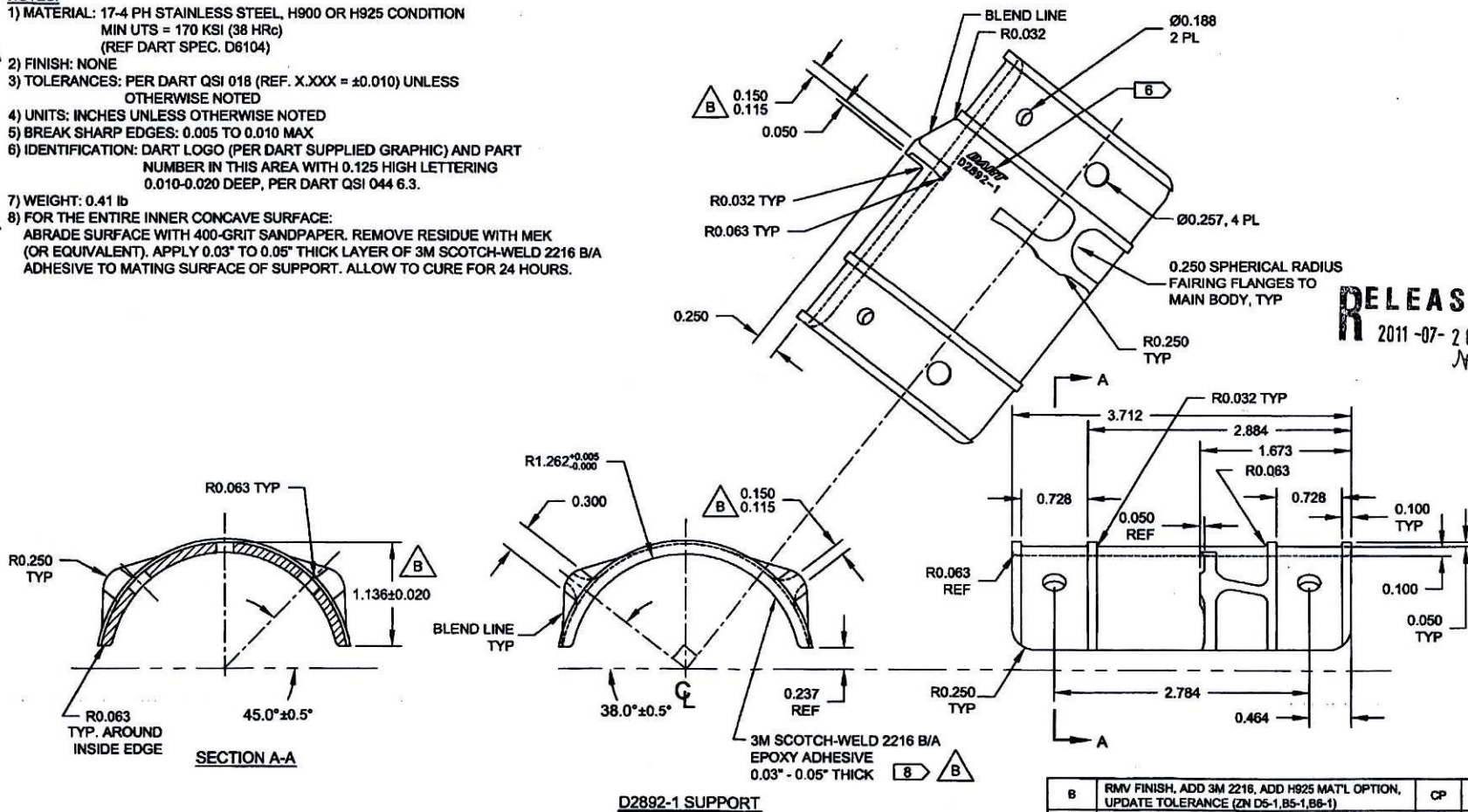
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX

6) IDENTIFICATION: DART LOGO (PER DART SUPPLIED GRAPHIC) AND PART NUMBER IN THIS AREA WITH 0.125 HIGH LETTERING
0.010-0.020 DEEP, PER DART QSI 044 6.3.

7) WEIGHT: 0.41 lb

8) FOR THE ENTIRE INNER CONCAVE SURFACE:

ABRADE SURFACE WITH 400-GRIT SANDPAPER. REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY 0.03" TO 0.05" THICK LAYER OF 3M SCOTCH-WELD 2216 B/A ADHESIVE TO MATING SURFACE OF SUPPORT. ALLOW TO CURE FOR 24 HOURS.



RELEASED
2011-07-28

B	RMV FINISH, ADD 3M 2216, ADD H925 MAT'L OPTION, UPDATE TOLERANCE (ZIN D5-1, B5-1, B6-1)	CP	11.07.15
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	11.07.15		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D2892 REV. B SHEET 1 OF 1 TITLE Ø2.500 SUPPORT SCALE NTS COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐ Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐			FAULT CATEGORY Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		
OTHER :					